

What is claimed is:

1 1. A receiver system comprising:  
2 a searcher to identify pilot signals within a received signal, said pilot signals  
3 corresponding to a plurality of remote base stations; and  
4 a pilot tracking unit to continuously track pilot signals identified by said  
5 searcher, said pilot tracking unit to track at least one pilot signal associated with an  
6 affiliated base station and, when identified by said searcher and selected for tracking, at  
7 least one pilot signal associated with a non-affiliated base station.

1 2. The receiver system of claim 1, wherein:  
2 said pilot tracking unit performs continuous time tracking and continuous  
3 channel tracking for said at least one pilot signal associated with said affiliated base  
4 station and, when identified by said searcher and selected for tracking, for said at least  
5 one pilot signal associated with said non-affiliated base station.

1 3. The receiver system of claim 1, wherein:  
2 said pilot tracking unit performs continuous time tracking, continuous channel  
3 tracking, and continuous frequency tracking for said at least one pilot signal associated  
4 with said affiliated base station and, when identified by said searcher and selected for  
5 tracking, for said at least one pilot signal associated with said non-affiliated base  
6 station.

1 4. The receiver system of claim 1, wherein:  
2 said pilot tracking unit continuously tracks a majority of the pilot signals  
3 identified by said searcher.

1 5. The receiver system of claim 1, comprising:  
2 a controller to determine which pilot signals identified by said searcher will be  
3 continuously tracked by said pilot tracking unit.

- 1 6. The receiver system of claim 5, wherein:  
2 said controller determines which pilot signals identified by said searcher will be  
3 continuously tracked within said pilot tracking unit based on a predetermined selection  
4 criterion.
- 1 7. The receiver system of claim 6, wherein:  
2 said predetermined selection criterion includes a condition related to pilot signal  
3 strength.
- 1 8. The receiver system of claim 1, comprising:  
2 a receiver to demodulate data within the received signal that is associated with a  
3 predetermined user, said receiver using information gathered by the pilot tracking unit  
4 to demodulate said data.
- 1 9. The receiver system of claim 8, comprising:  
2 an SSDT unit to dynamically select a single base station to transmit user data to  
3 the receiver system based on tracking information gathered by the pilot tracking unit.
- 1 10 The receiver system of claim 8, wherein:  
2 said receiver includes a rake receiver having a plurality of rake fingers, wherein  
3 said information gathered by the pilot tracking unit is used to dynamically optimize the  
4 assignment of rake fingers within the rake receiver.
- 1 11. The receiver system of claim 8, wherein:  
2 said receiver includes an interference mitigation receiver to reduce the negative  
3 effect of interference in the data demodulation using information gathered by the pilot  
4 tracking unit.

1 12. The receiver system of claim 11, wherein:  
 2 said interference mitigation receiver includes a demodulation unit to demodulate  
 3 data-bearing interference signal components based on information gathered by the pilot  
 4 tracking unit.

1 13. The receiver system of claim 11, wherein:  
 2 said interference mitigation receiver includes a pilot interference reduction unit  
 3 to reduce the level of pilot signal interference using information gathered by the pilot  
 4 tracking unit.

1 14. The receiver system of claim 8, comprising:  
 2 a decoder to decode an output signal of the receiver; and  
 3 a decision metric correction unit to modify at least one decision metric used by  
 4 the decoder to decode the output signal of the receiver based on information gathered  
 5 by said pilot tracking unit.

1 15. The receiver system of claim 1, wherein:  
 2 said pilot tracking unit generates signal strength related information and  
 3 diversity information for one or more remote base stations for use in making a soft-  
 4 handoff decision.

1 16. The receiver system of claim 1, comprising:  
 2 a position estimator to estimate a present position of the receiver system using  
 3 information gathered by said pilot tracking unit.

1 17. The receiver system of claim 16, wherein:  
 2 said position estimator estimates a present position of the receiver system using  
 3 pilot signal timing estimates gathered by said pilot tracking unit in a time difference of  
 4 arrival (TDOA) position location technique.

1 18. The receiver system of claim 1, wherein:  
2 said pilot tracking unit includes a plurality of independent pilot trackers to each  
3 continuously track a single assigned pilot signal.

1 19. A method for processing a received signal within a communication device,  
2 comprising:  
3 identifying pilot signals within the received signal, said pilot signals being  
4 associated with a plurality of remote base stations; and  
5 continuously tracking identified pilot signals for timing and channel  
6 information, wherein continuously tracking includes continuously tracking at least one  
7 pilot signal associated with an affiliated base station and continuously tracking, when  
8 identified during identifying pilot signals and selected for tracking, at least one pilot  
9 signal associated with a non-affiliated base station.

1 20. The method of claim 19, wherein:  
2 continuously tracking includes only continuously tracking identified pilot  
3 signals that satisfy a predetermined selection criterion.

1 21. The method of claim 20, wherein:  
2 said predetermined selection criterion is related to a signal strength of an  
3 identified pilot signal.

1 22. The method of claim 20, wherein:  
2 said predetermined selection criterion gives priority to certain base stations.

1 23. The method of claim 19, comprising:  
2 dynamically selecting identified pilot signals to be continuously tracked.

1 24. The method of claim 19, wherein:  
2 continuously tracking identified pilot signals includes continuously tracking  
3 said pilot signals for frequency information.

1 25. The method of claim 19, comprising:  
2 providing continuously tracked timing and channel information to a receiver for  
3 use in demodulating a received signal.

1 26. The method of claim 19, comprising:  
2 using said continuously tracked timing and channel information to dynamically  
3 select a single remote base station to transmit user data to the mobile communication  
4 device in an SSDT mode of operation.

1 27. The method of claim 19, comprising:  
2 using said continuously tracked timing and channel information to modify at  
3 least one decision metric used by a decoder to decode data associated with a  
4 predetermined user.

1 28. The method of claim 19, comprising:  
2 using said continuously tracked timing and channel information to estimate a  
3 position of the mobile communication device.

1 29. The method of claim 19, comprising:  
2 dynamically assigning rake fingers within a rake receiver based on said  
3 continuously tracked timing and channel information.

1 30. A receiver system comprising:  
2 a searcher to identify pilot signals within a received signal, said pilot signals  
3 corresponding to a plurality of remote base stations;

4 a pilot tracking unit to continuously track pilot signals identified by said  
 5 searcher for timing and channel information, said pilot tracking unit to track at least one  
 6 pilot signal associated with an affiliated base station and, when identified by the  
 7 searcher and selected for tracking, at least one pilot signal associated with a non-  
 8 affiliated base station;

9 at least one rake receiver to demodulate data within the received signal that is  
 10 associated with a corresponding user, said at least one rake receiver having a plurality  
 11 of rake fingers; and

12 a controller to manage the operation of said searcher, said pilot tracking unit,  
 13 and said rake receiver, wherein said controller includes a selection module to select  
 14 individual pilot signals identified by the searcher to be continuously tracked by the pilot  
 15 tracking unit.

1 31. The receiver system of claim 30, wherein:

2 said controller includes a rake finger assignment module to dynamically assign  
 3 rake fingers to individual paths based on the timing and channel information developed  
 4 by the pilot tracking unit.

1 32. The receiver system of claim 30, wherein:

2 said controller includes a module to assemble base station diversity information  
 3 from the pilot tracking unit for use in making soft-handoff decisions.

1 33. The receiver system of claim 30, wherein:

2 said pilot tracking unit continuously tracks a majority of the pilot signals  
 3 identified by said searcher.